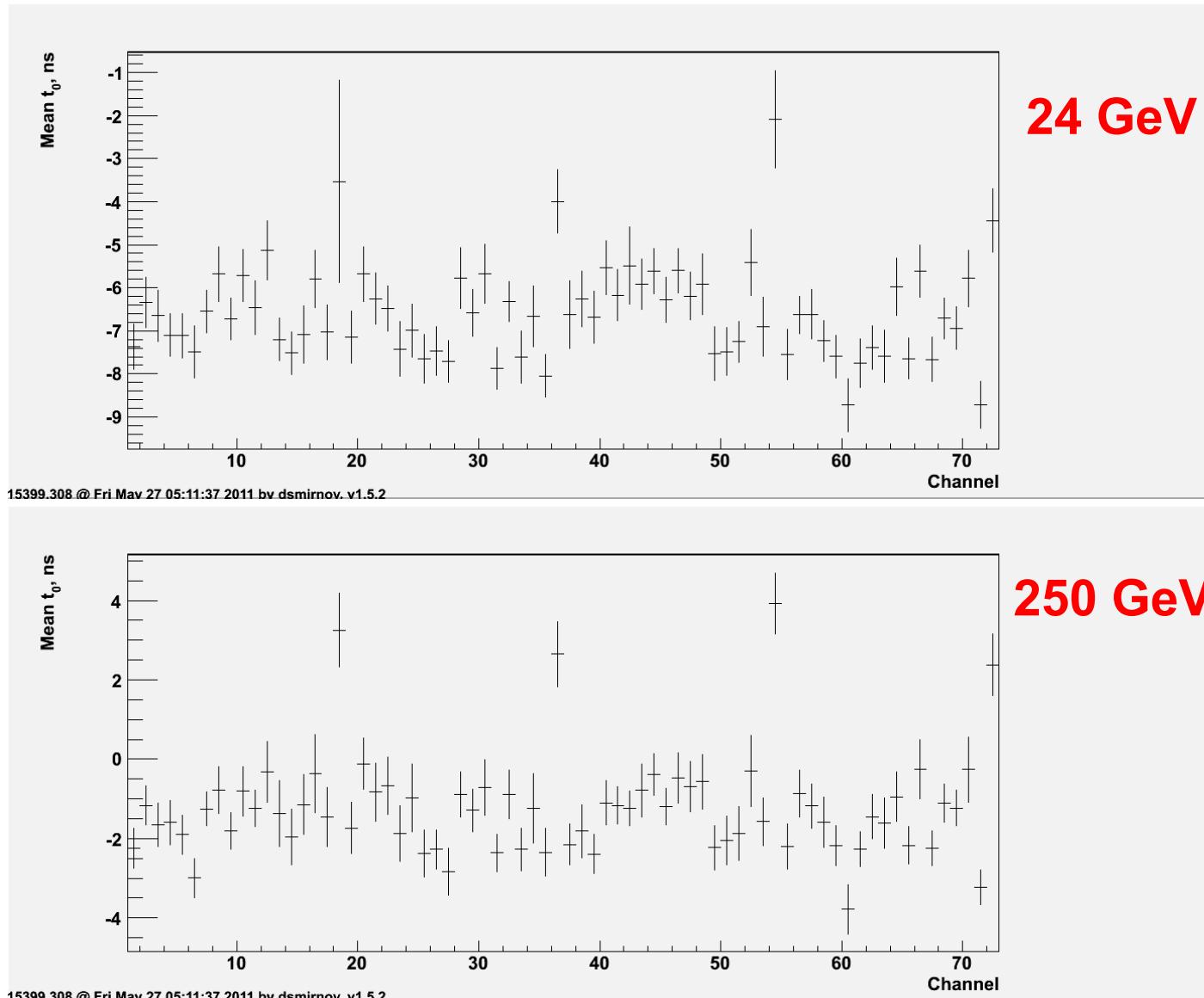


Timing shift inj→store

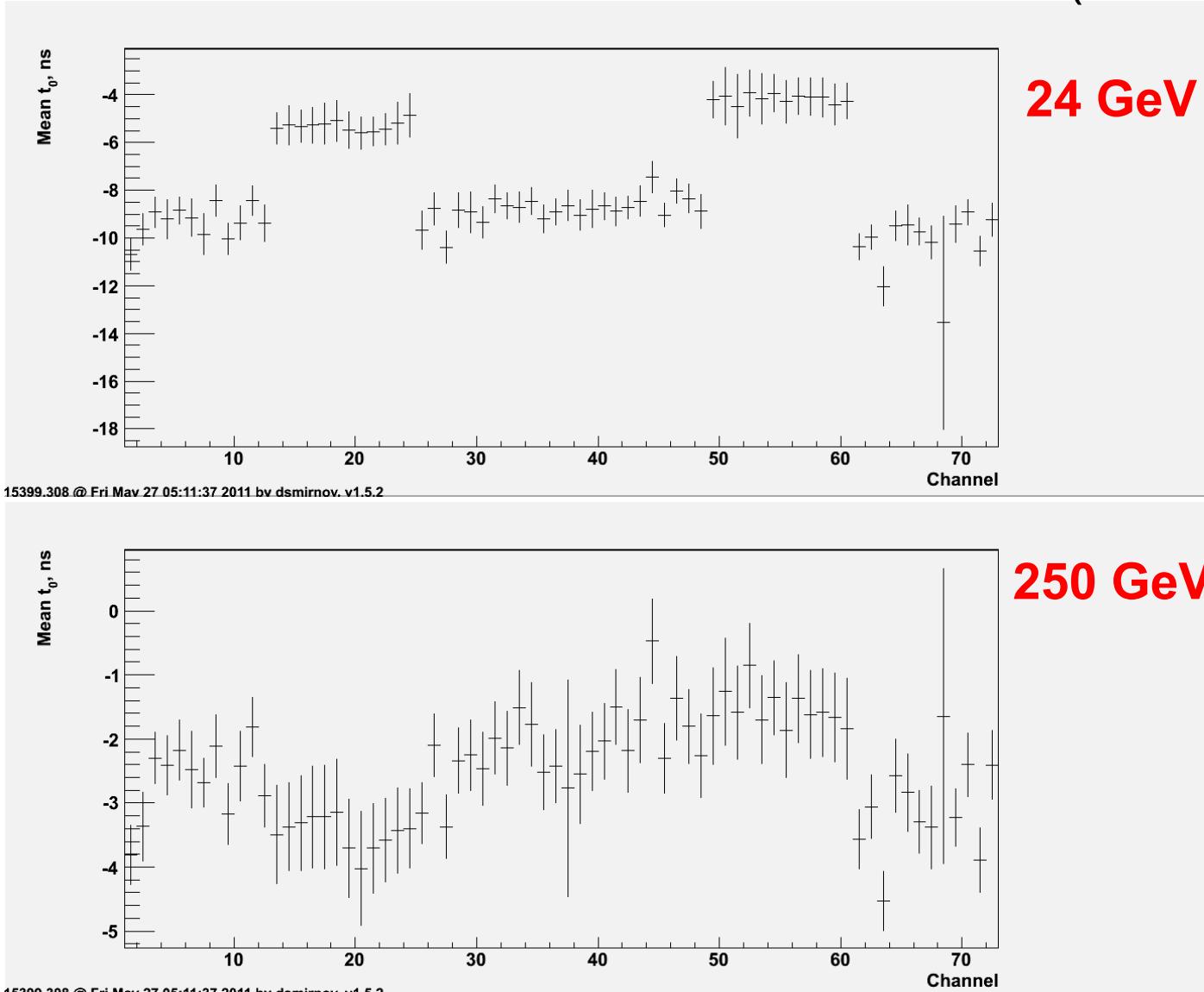
pol. mtg. 02.06.11

- From D.L. fits Y2U, $(-t_0)/\text{chan.}$: inj.→store shift -5nS (all BNL det.)



Timing shift inj→store

- From D.L. fits Y1D, $(-t_0)/\text{chan.}$: inj.→store shift -6nS (BNL)
-2nS (Ham.)

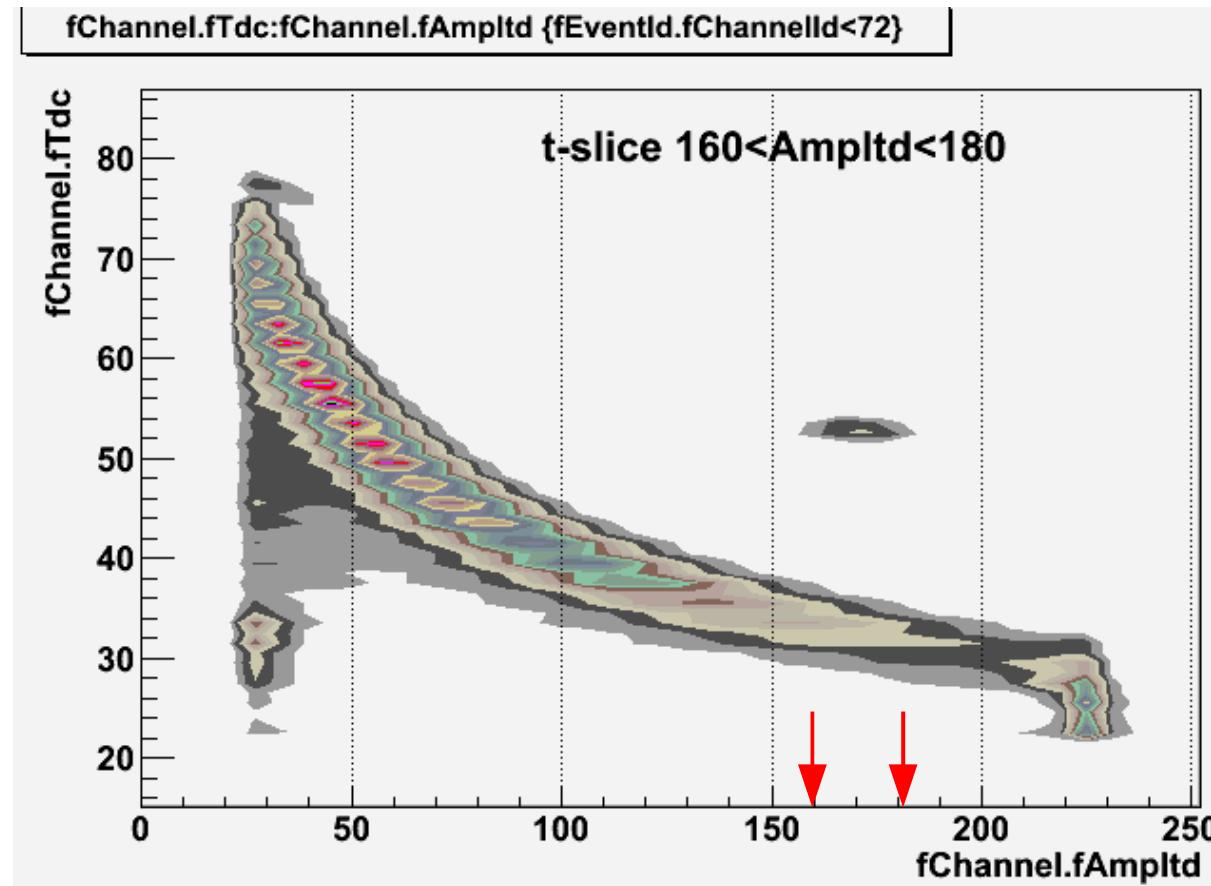


Timing shift inj→store

- They can't all be the real t_0 shift:
beam timing ↔ WFD clock same shift inj→store all detectors
- Check timing in raw data; use same fill, Y2U & Y1D
- Y2U: BNL detectors, t_0 scintillators V1 & S1
- Y1D: BNL & Hamamatsu detectors
- Couple of points:
 - fill used here had H target in Y1D, Ham. blocked by target frame
but still enough Ham. data in banana for timing measurement
 - just eyeball peaks of distributions; later improve time reconstruction
 - plots shown in TDC units = 1.2 nS

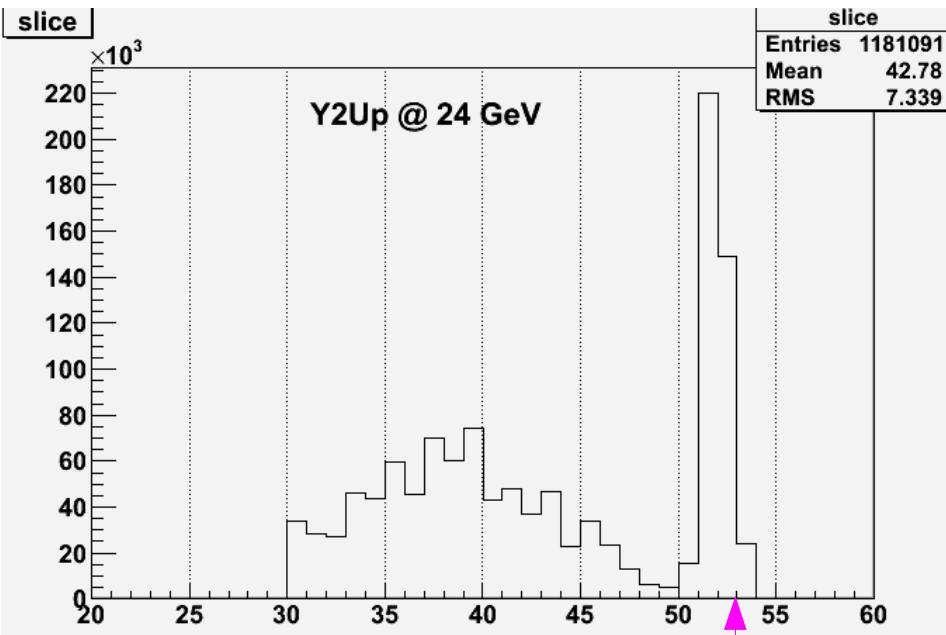
Y2U

- For BNL Si timing use slice $160 < \text{Ampltd} < 180$
flat part of banana, t less sensitive to E shifts
- Also get pulser: timing should not shift inj → store

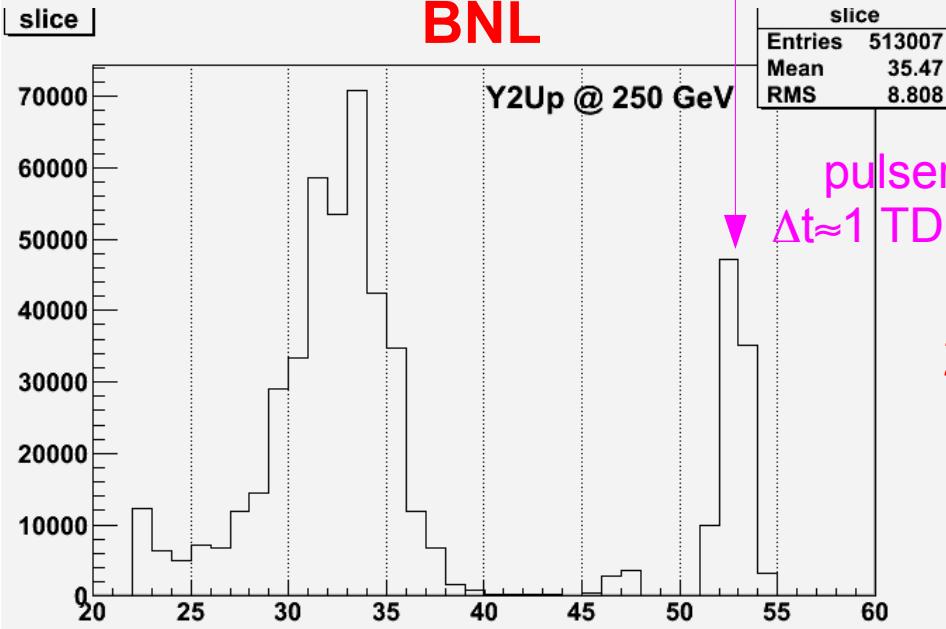


- For scint. just use data < ADC saturation;
clean time peaks, shown previously 4

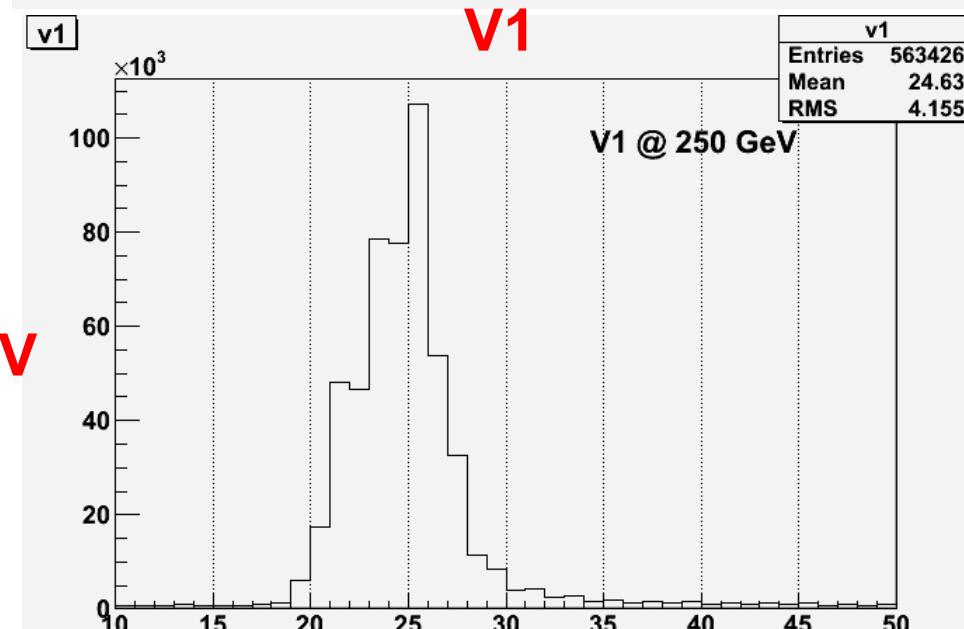
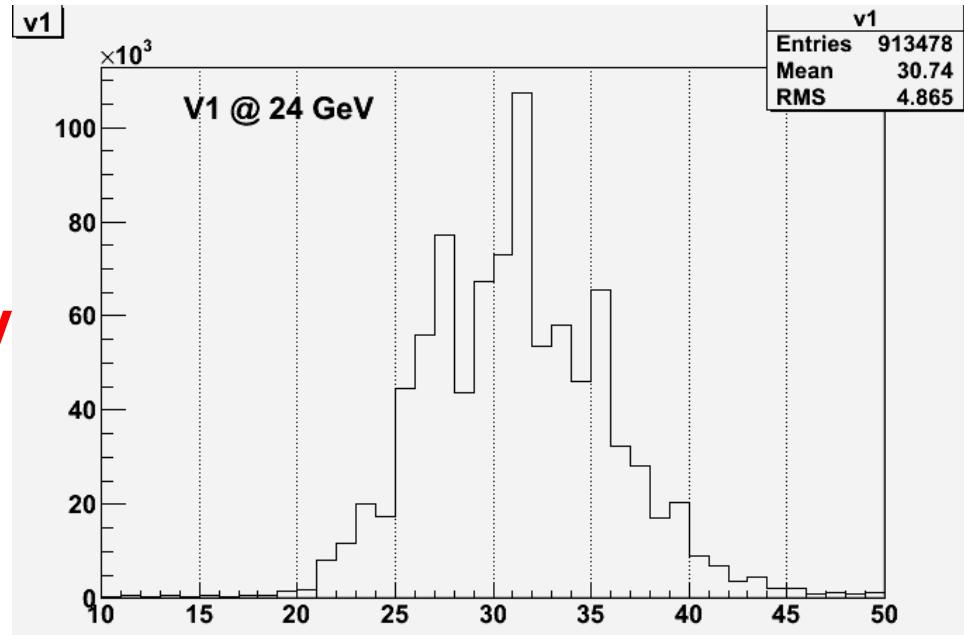
Y2U: BNL det. & scint. V1



24 GeV



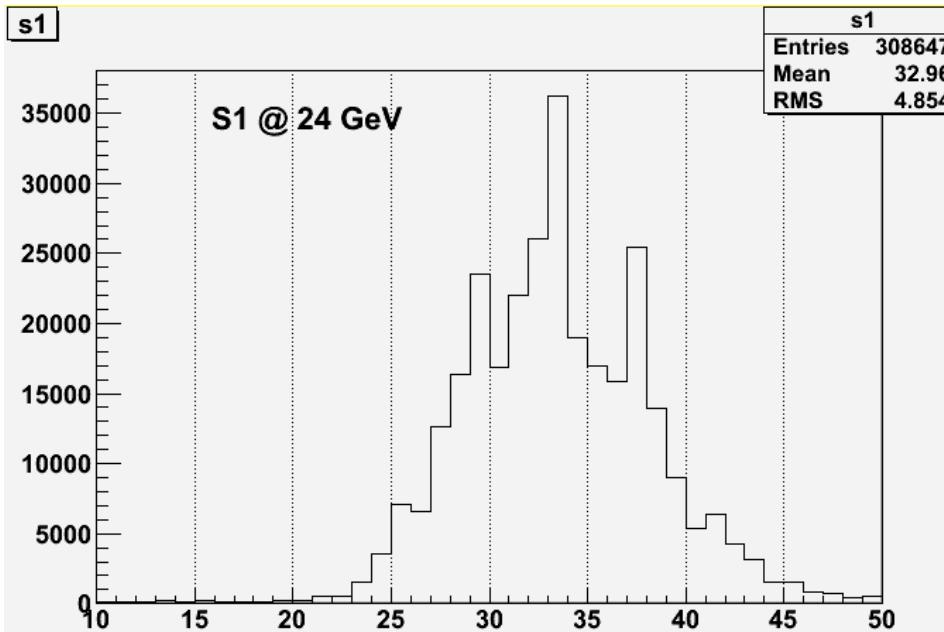
250 GeV



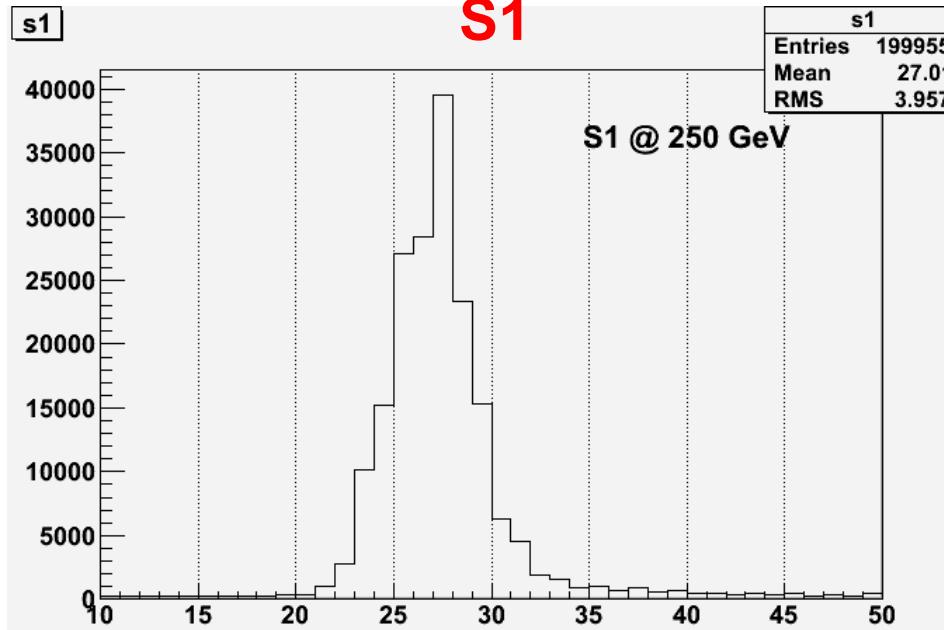
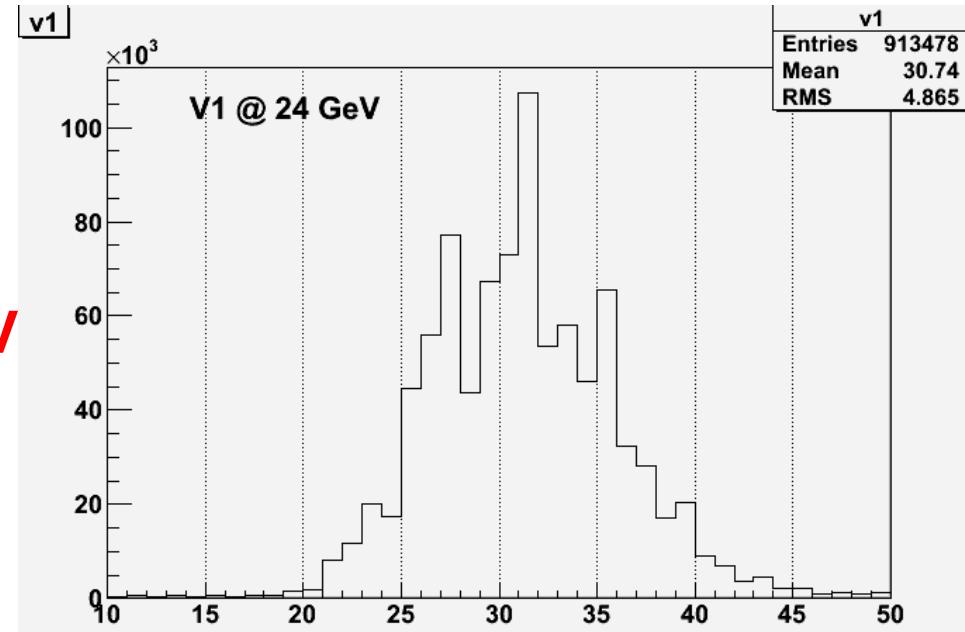
- BNL $\Delta t \approx -6$ TDC units

- V1 $\Delta t \approx -6$ TDC units

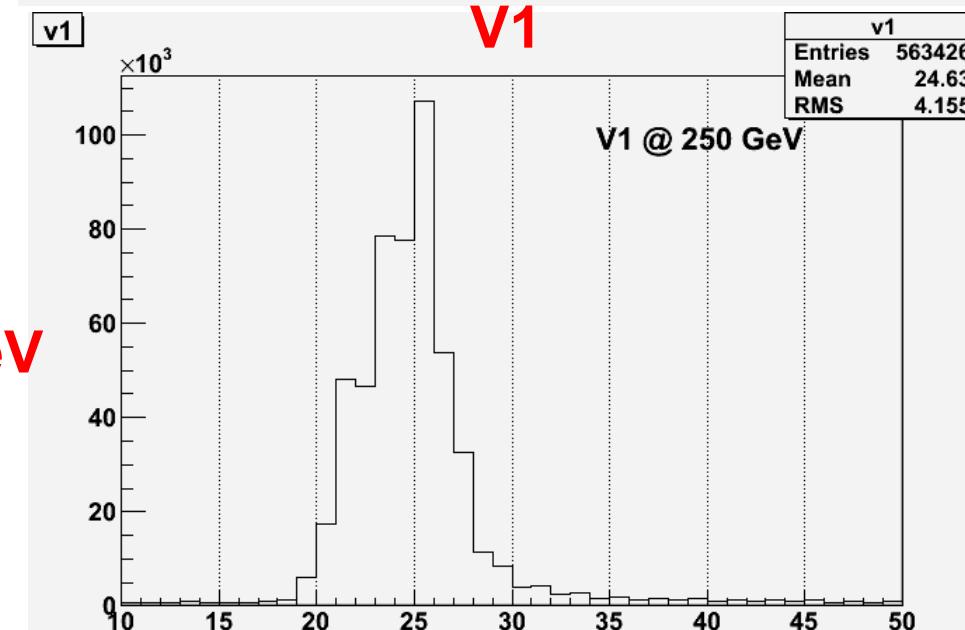
Y2U: scint. S1 & V1



24 GeV



250 GeV

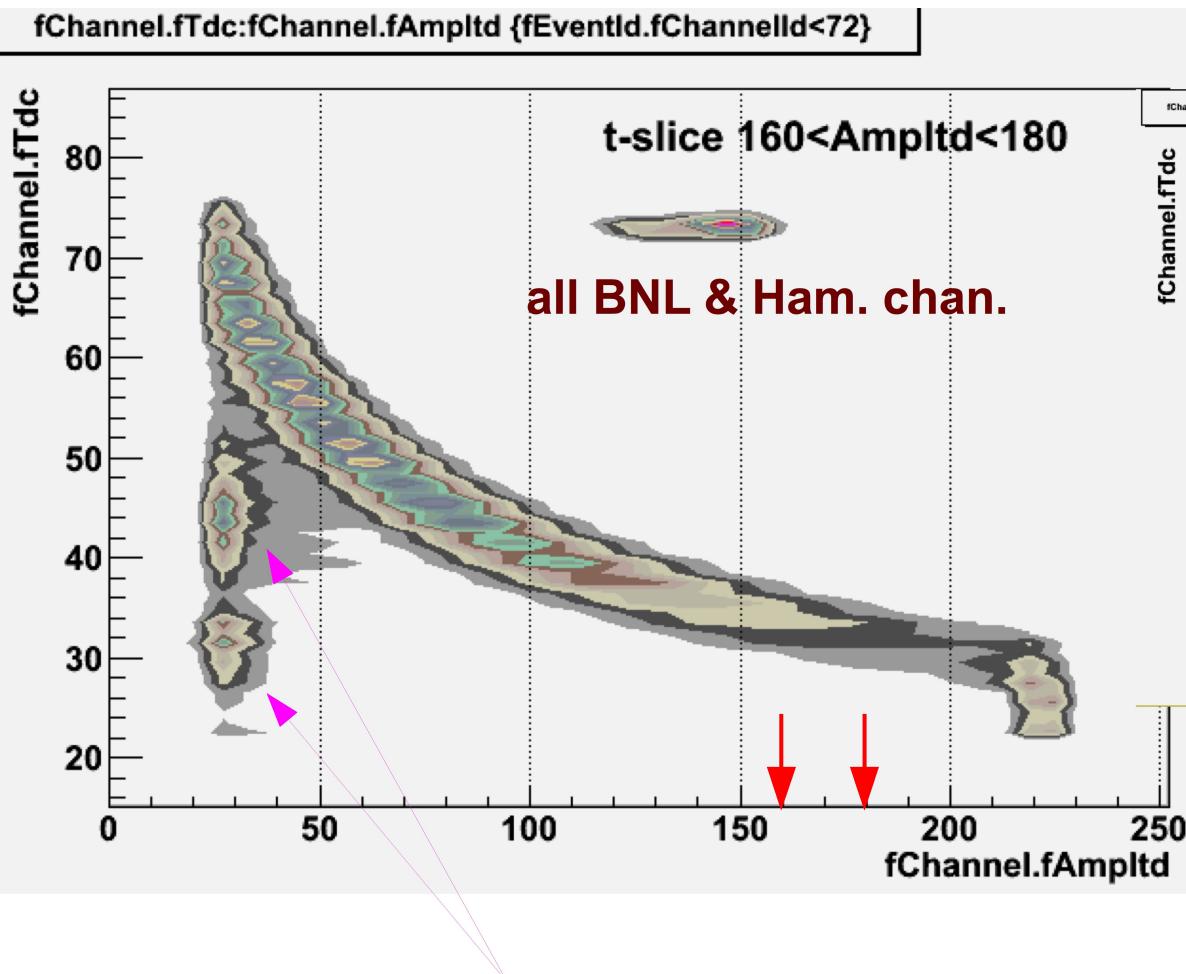


- S1 $\Delta t \approx -6$ TDC units

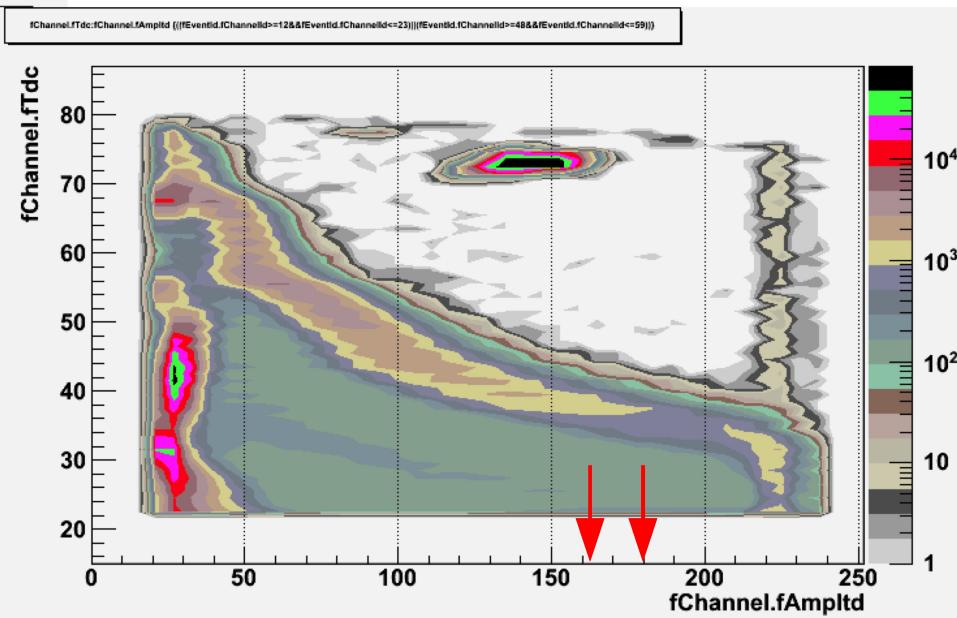
- V1 $\Delta t \approx -6$ TDC units

Y1D

- For BNL & Ham. Si timing use slice $160 < \text{Ampltd} < 180$
flat part of banana, t less sensitive to E shifts



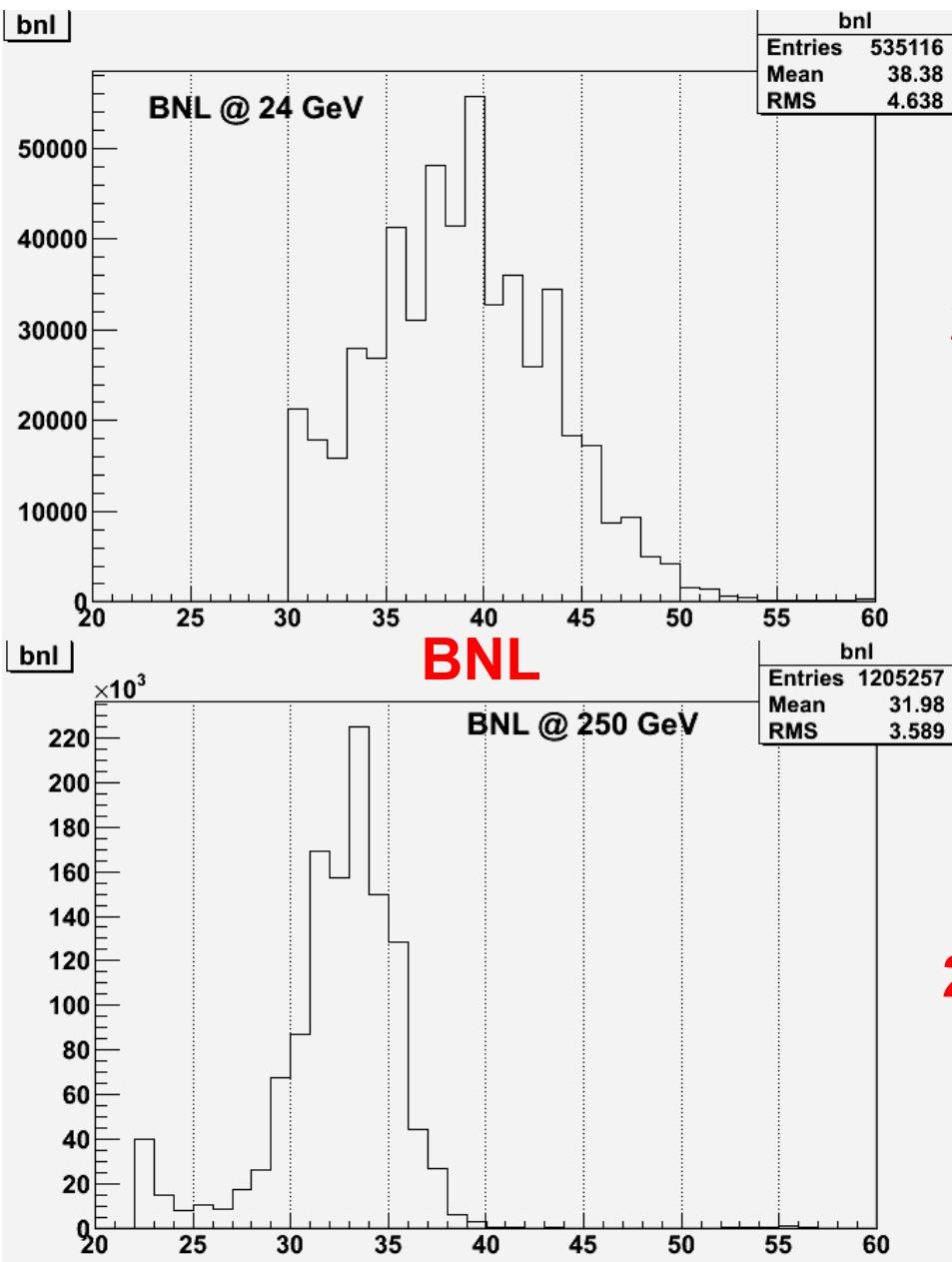
Ham. chan. log-z scale



- Low rate in blocked Ham. detectors, but can still get OK t-peaks ↘

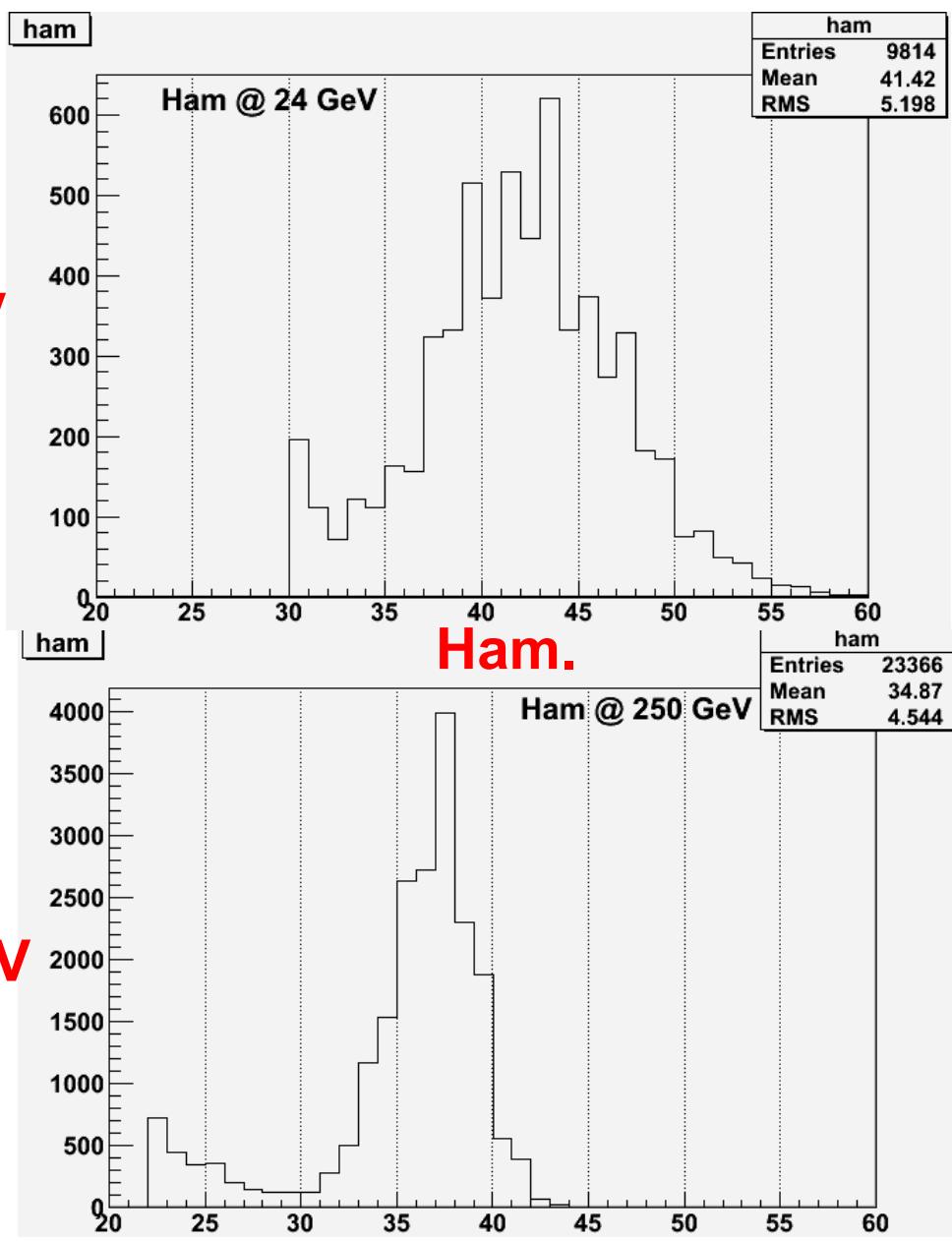
It should be fun to figure out what these things are!

Y1D: BNL & Ham. det.



24 GeV

250 GeV



- BNL $\Delta t \approx -6$ TDC units

- Ham. $\Delta t \approx -6$ TDC units

Summary: Timing shift inj→store

- All of the raw data show timing shift inj→store ≈ -7 nS
- The D.L. fit parameters t_0 do not quite reflect this:

BNL: $\Delta t_0 \sim 5\text{-}6$ nS

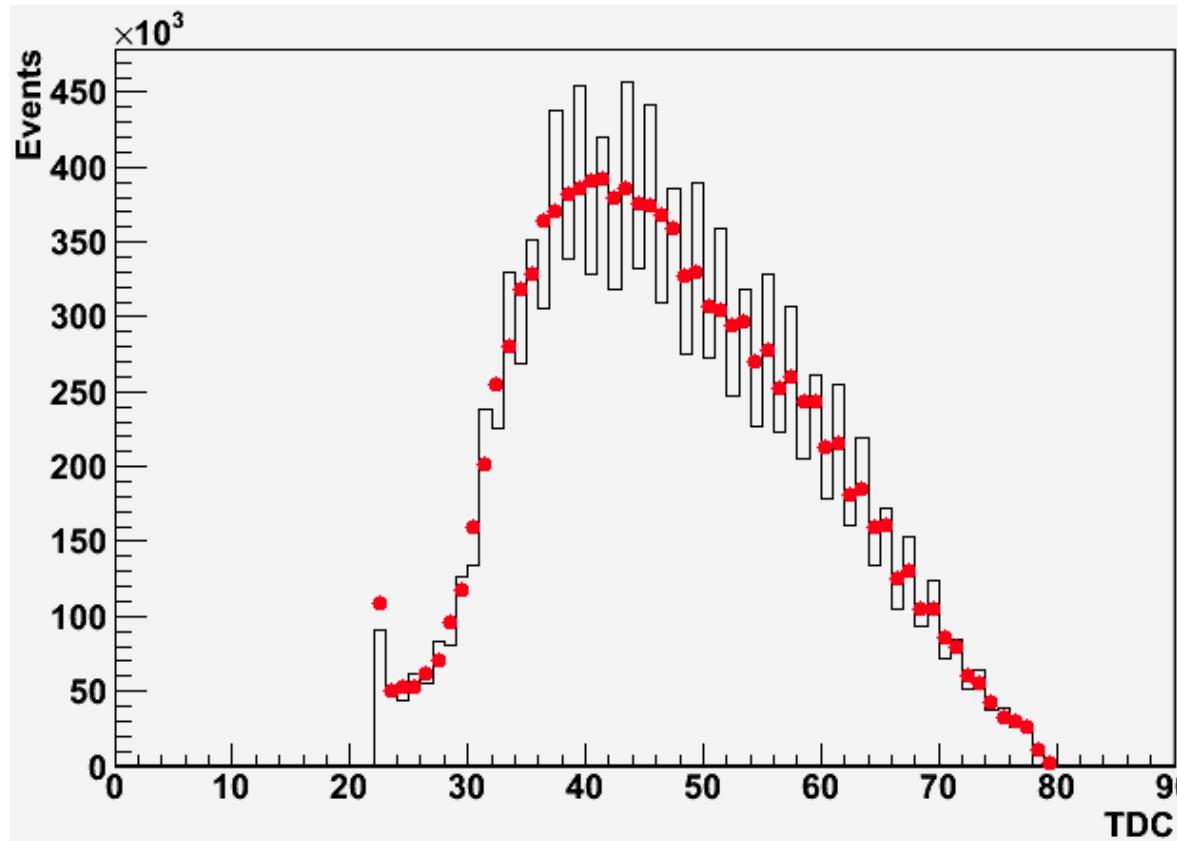
Ham.: $\Delta t_0 \sim 2$ nS, significantly smaller

- D.L. fit parameters t_0 not purely t-sensitive

EXTRAS

Coming attraction: TDC correction

- Our TDC distributions always look ratty, up/down bins
- This can be corrected
- Here e.g. TDC distribution for banana events
 - histogram: raw TDC distribution
 - red points: corrected TDC distribution



- For a future meeting...